

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A water-tolerant, regenerable adsorbent for use in an acid gas dry scrubbing process, the adsorbent comprising surface or framework amine-functionalised mesoporous silica or organosilica, wherein amino groups are covalently bound to the mesoporous silica or organosilica and are readily accessible within pore volumes, pore surfaces or pore walls of the mesoporous silica or organosilica, and wherein the adsorbent has a carbon dioxide adsorption capacity of at least 2.50 cc/g at standard temperature and pressure.
2. (Original) The adsorbent of claim 1, wherein the amine-functionalised mesoporous silica or organosilica comprises amine-containing molecules that are covalently bound to the surface of the pore walls.
3. (Original) The adsorbent of claim 2, wherein the amine-containing molecules are amine-containing trialkoxysilane or trichlorsilane.
4. (Canceled)
5. (Canceled)
6. (Previously Presented) The adsorbent of claim 3, wherein the trialkoxysilane is selected from the group consisting of aminopropyltriethoxysilane, p-aminophenyltrimethoxysilane, 3-(m-amino-phenoxy)propyltrimethoxysilane, N-methylaminopropyltrimethoxysilane, N-phenylaminopropyltrimethoxysilane, N,N-dimethylaminopropyltrimethoxysilane, N,N-diethylaminopropyltrimethoxysilane, Bis(2-hydroxyethyl)3-aminopropyltriethoxysilane, N-(2-aminoethyl)3-aminopropyltrimethoxysilane and combinations thereof.

7. (Original) The adsorbent of claim 1, wherein the mesoporous silica or organosilica comprises an amine-functionalised framework.
8. (Previously Presented) The adsorbent according to claim 1, wherein the acid gas is carbon dioxide.
9. (Previously Presented) A method of dry scrubbing comprising the step of contacting a gaseous stream containing an acid gas to be removed with water-tolerant, regenerable adsorbent comprising surface or framework amine-functionalised mesoporous silica or organosilica, wherein amino groups are readily accessible within pore volumes, pore surfaces or pore walls of the mesoporous silica or organosilica.
10. (Original) The method according to claim 9, wherein the amine-functionalised mesoporous silica or organosilica comprises amine-containing molecules that are covalently bound to the surface of the pore walls.
11. (Original) The method according to claim 9, wherein the pore walls of the amine-functionalised mesoporous silica or organosilica has a hydrophobic surface and amine-containing molecules are dispersed within the hydrophobic surface.
12. (Canceled).
13. (Previously Presented) A process for preparing an adsorbent according to claim 2, comprising:
 - (a) providing a mesoporous silica or organosilica; and
 - (b) grafting an amine-containing silane to the surface of the mesoporous silica or organosilica to produce the amine-functionalised mesoporous silica or organosilica.
14. (Previously Presented) A process for preparing an adsorbent according to claim 2, comprising:

- (a) mixing a source of silica or organosilica, an amine-containing silane and an amphiphile molecule under conditions that facilitate self assembly to produce the amine-functionalised mesoporous silica or organosilica.

15. (Previously Presented) A process for preparing an adsorbent according to claim 2, comprising:

- (a) providing a mesoporous silica or organosilica;
- (b) grafting an reactive group-containing silane to the surface of the mesoporous silica or organosilica; and
- (c) treating the reactive group-containing mesoporous silica or organosilica with an amine to produce the amine-functionalised mesoporous silica or organosilica.

16. (Previously Presented) A process for preparing an adsorbent according to claim 2, comprising:

- (a) mixing a source of silica or organosilica, a reactive group-containing silane and an amphiphile molecule to produce the reactive group-containing mesoporous silica or organosilica; and
- (b) treating the reactive group-containing mesoporous silica or organosilica with an amine to produce the amine-functionalised mesoporous silica or organosilica.

Claims 17-19 (Canceled)

20. (Previously Presented) A process for preparing an adsorbent according to claim 7, comprising:

- (a) mixing a reactive group-containing silica source with an amphiphilic molecule to produce a mesoporous silica or organosilica having a framework comprising reactive sites; and
- (b) introducing amino groups at the reactive sites to produce the amine-functionalised mesoporous silica or organosilica.

21. (Previously Presented) A system for removal of an acid gas from a gaseous stream, comprising:
 - (a) two or more sorbent beds comprising a water-tolerant, regenerable adsorbent comprising surface or framework amine-functionalised mesoporous silica or organosilica, wherein amino groups are readily accessible within pore volumes, pore surfaces or pore walls of the mesoporous silica or organosilica and wherein the adsorbent has a carbon dioxide adsorption capacity of at least 2.50 cc/g at standard temperature and pressure;
 - (b) valve means for controlling gas flow through the sorbent beds; and;
 - (c) pump means for controlling gas pressure in the system.
22. (Previously Presented) The system according to claim 21, wherein the acid gas is carbon dioxide.
23. (Previously Presented) The system according to claim 21, wherein the adsorbent is pelletized with a binder that is an inert secondary material.
24. (Previously presented) The system according to claim 21, wherein the adsorbent is pelletized with a binder that is an active secondary material.
25. (Previously presented) The method according to claim 9, wherein the mesoporous silica or organosilica comprises an amine-functionalized framework.